AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A composition for generating a complex-forming metal ion labeled conjugate, the composition comprising:

(a) a metal support surface which is made of gold, silver or copper, or which is a substrate that is coated with gold, silver or copper, said substrate selected from the group consisting of inorganic silicate glass, alkylamino functionalized controlled-pore glass, silica, alumina beads, organic polystyrene, polyacrylamide, Sephadex, and agarose; and

(b) a conjugate releasably bound to the support surface, the conjugate comprising a ligand and a targeting molecule;

wherein the conjugate coordinates with a complex-forming metal ion so that the labeled conjugate is released from the support surface.

2. (Previously presented) The composition of claim 1, wherein the metal support surface releasably coordinates to sulfur or phosphorous and the ligand comprises a sulfur or phosphorous atom for binding to the metal support surface.

3. (Previously presented) The composition of claim 2, wherein the ligand comprises a sulfur atom attached to a sulfur protecting group, wherein the metal support surface binds to the protected sulfur atom thereby releasing the sulfur protecting group from the sulfur atom and forming a thiol bond with the ligand.

4. (Currently amended) The composition of claim 2, wherein the targeting molecule ~~comprises~~ is selected from the group consisting of a peptide, a polypeptide, a peptide or polypeptide mimetic or an organic molecule having a molecular weight less than about 600 Daltons.

5. (Currently amended) The composition of claim 4, wherein the targeting molecule ~~comprises a peptide sequence~~ is selected from the group consisting of a bombesin 7-14 fragment, QWAVGHLM (SEQ ID NO:1), TKPPR (SEQ ID NO:2) and RGDS (SEQ ID NO:3).

6. (Previously presented) The composition of claim 4, wherein the targeting molecule comprises an organic molecule of 6 to 500 carbon atoms that targets a receptor or a transporter.

7. (Previously presented) The composition of claim 2, wherein the ligand comprises:

(a) a surface binding group selected from the group consisting of a cysteine amino acid residue, a thiol or thioester group attached to an organic molecule, an amino acid residue, and a phosphorous containing organic molecule, wherein the amino acid residue or organic molecule binds to the support surface; and

(b) at least one accessory group that coordinates with the complex-forming metal ion, where the accessory group is selected from the group consisting of (a) a nitrogen, oxygen or sulfur atom incorporated in an amino acid residue; (b) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an amino acid residue; (c) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an organic molecule; and (d) a

combination of one or more of (a) to (c), wherein the residues and/or molecules have metal coordinating activity.

8. (Previously presented) The composition of claim 7, wherein the targeting molecule is selected from the group consisting of a peptide, a peptide mimetic, a polypeptide, a polypeptide mimetic and an organic molecule having a molecular weight less than about 600 Daltons.

9. (Previously presented) The composition of claim 8, wherein the ligand is selected from the group consisting of a tetradentate N_3S ligand, and a polyamino polysulfide.

10. (Previously presented) The composition of claim 8, wherein the ligand comprises 3 accessory groups, each selected from the group consisting of (a) a nitrogen, oxygen or sulfur atom incorporated in an amino acid residue; (b) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an amino acid residue; (c) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an organic molecule; and (d) a combination of one or more of (a) to (c), wherein the residues and/or molecules have metal coordinating activity.

11. (Currently amended) The composition of claim 1, wherein the targeting molecule ~~comprises a molecule having~~ has agonist or antagonist activity and is selected from the group consisting of a polypeptide, a peptide, a nucleic acid molecule, an oligonucleotide, a saccharide, an oligosaccharide, a steroid, a cyclic peptide, a peptide or polypeptide mimetic, an enzyme substrate, an inhibitor and an organic molecule having a molecular weight less than about 600 Daltons.

12. (Currently amended) The composition of claim 1, wherein the targeting molecule ~~comprises~~ is selected from the group consisting of a peptide, a polypeptide, a peptide or polypeptide mimetic or an organic molecule having a molecular weight less than about 600

Daltons.

13. (Currently amended) The composition of claim 1, wherein the targeting molecule ~~comprises a molecule~~ is selected from the group consisting of a bombesin 7-14 fragment, QWAVGHLM (SEQ ID NO:1), TKPPR (SEQ ID NO:2), RGDS (SEQ ID NO:3) and an organic molecule having a molecular weight less than about 600 Daltons that targets a receptor or a transporter.

14. (Previously presented) The composition of claim 6 or claim 13, wherein the receptor or transporter is selected from the group consisting of a dopamine receptor or transporter, a serotonin receptor or transporter, a sigma receptor, GABA receptor, a nicotinic receptor, a cholinergic receptor, a norepinephrine receptor or transporter, a glucose transporter and an opioid receptor.

15. (Cancelled)

16. (Previously presented) The composition of claim 3, wherein the metal support surface is gold.

17. (Previously presented) The composition of claim 1, wherein the complex-forming metal is selected from the group of metals and radioisotopic metals consisting of Tc, Re, Mn, Fe, Co, Ni, Zn, Cd, Mo, W, Cu, Ag, Au, Ti, Hg, Cr and Rh.

18. (Previously presented) The composition of claim 17, wherein the complex-forming metal is selected from the group of metals and radioisotopic metals consisting of Tc, Cu and Re.

19. (Previously presented) A method of generating a complex-forming metal ion labeled conjugate for use as a diagnostic agent or radiotherapeutic agent, comprising: contacting the composition of claim 1 with a metal ion to form a coordinate bond between the metal ion and

the conjugate so that the complex-forming metal labeled conjugate is released from the support surface.

20. (Previously presented) The method of claim 19, further comprising collecting the labeled conjugate so released.

21. (Cancelled)

22. (Previously presented) A technetium or rhenium labeled conjugate prepared using a composition of claim 1, wherein the conjugate is labeled with ^{99m}Tc and has a specific activity of greater than 10,000 Ci/mmol or with ^{188}Re and has a specific activity of greater than 3,000 Ci/mmol.

23. (Previously presented) The composition of claim 22, wherein the conjugate comprises dimethylglycylserinylcysteinylglycine and a targeting molecule.

24. (Previously presented) A pharmaceutical composition comprising a pharmaceutically acceptable carrier and the metal ion labeled conjugate of claim 22.

25. (Original) The pharmaceutical composition of claim 24 further comprising at least one agent selected from the group consisting of a reducing agent, a bulking agent and a pH stabilizing agent.

26. (Previously presented) A method of imaging a mammal comprising:

(a) administering an effective amount of the composition of claim 24; and

(b) generating an image.

27. (Previously presented) A method of radiotherapy in a mammal comprising administering an effective amount of the composition of claim 24.

28. (Previously presented) The method of claim 26, wherein the composition is

administered intravenously.

29. (Cancelled)

30. (Cancelled)

31. (Previously presented) The method of claim 26, wherein the mammal is a human.

32. (Cancelled)

33. (Previously presented) The method of claim 26, wherein the mammal is imaged by a technique selected from the group consisting of positron emission tomography, nuclear magnetic resonance imaging, scintigraphy, single photon emission computed tomography, perfusion contrast echocardiography, ultrafast X-ray computed tomography, and digital subtraction angiography.

34. (Previously presented) The method of claim 33, wherein the technique is single photon emission computed tomography.

35. (Previously presented) A kit comprising a metal support surface, conjugate and a predetermined quantity of complex-forming metal ion, the conjugate being releasably bound to the support surface and which coordinates with the complex-forming metal ion so that the conjugate is released from the metal support surface,

> wherein said metal support surface is made of gold, silver or copper, or is a substrate that is coated with gold, silver or copper, said substrate selected from the group consisting of inorganic silicate glass, alkylamino functionalized controlled-pore glass, silica, alumina beads, organic polystyrene, polyacrylamide, Sephadex, and agarose and the conjugate comprises a ligand and a targeting molecule.

36. (Previously presented) The kit of claim 35, wherein the ligand comprises a sulfur

atom attached to a sulfur protecting group.

37. (Previously presented) The kit of claim 35, wherein the ligand comprises a sulfur or phosphorous atom for binding to the metal support surface.

38. (Previously presented) The kit of claim 35, wherein the conjugate comprises a ligand and a targeting molecule, wherein the ligand comprises:

(a) a surface binding group selected from the group consisting of a cysteine amino acid residue, a thiol or thioester group attached to an organic molecule having a molecular weight less than about 600 Daltons, and a phosphorous containing organic molecule, wherein the amino acid residue or organic molecule releasably binds to the support surface; and

(b) at least one accessory group that coordinates with the complex-forming metal ion wherein the accessory group is selected from the group consisting of (a) a nitrogen, oxygen or sulfur atom incorporated in an amino acid residue; (b) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an amino acid residue; (c) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an organic molecule; and (d) a combination of one or more accessory groups.

39. (Previously presented) The kit of claim 35, wherein the complex-forming metal is selected from the group of metals and radioisotopic metals consisting of Tc, Re, Mn, Fe, Co, Ni, Zn, Cd, Mo, W, Cu, Ag, Au, Ti, Hg, Cr and Rh.

40. (Previously presented) The kit of claim 39, further comprising at least one agent selected from the group consisting of a reducing agent, a bulking agent and a pH stabilizing agent.

41. (Currently amended) A method for generating a complex-forming metal ion labeled agent comprising:

(a) providing a metal support surface which is made of gold, silver or copper, or which is a substrate that is coated with gold, silver or copper, said substrate selected from the group consisting of inorganic silicate glass, alkylamino functionalized controlled-pore glass, silica, alumina beads, organic polystyrene, polyacrylamide, Sephadex, and agarose;

(b) providing a conjugate comprising a ligand and targeting molecule, wherein the ligand ~~comprises~~ is selected from the group consisting of a peptide, a peptide mimetic, a polypeptide or a polypeptide mimetic of about 3 to 50 amino acid residues and includes a sulfur atom for binding to the metal support surface, the sulfur atom being protected by a sulfur protecting group;

(c) contacting the protected sulfur atom with the metal support surface so that the sulfur atom forms a thiol bond with the metal surface thereby releasing the sulfur protecting group; and

(d) contacting the ligand with the complex-forming metal ion to form a coordinate bond between the complex-forming metal ion and the ligand so that the complex-forming metal labeled agent is released from the support surface.

42. (Previously presented) The method of claim 41, wherein the complex-forming metal is selected from the group of metals and radioisotopic metals consisting of Tc, Re, Mn, Fe, Co, Ni, Zn, Cd, Mo, W, Cu, Ag, Au, Ti, Hg, Cr and Rh.

43 - 44. (Cancelled)

45. (Currently amended) The composition of claim 1, wherein the ligand comprises

an organic molecule having a molecular weight of less than about 600 Daltons, ~~which~~ wherein said organic molecule comprises:

(a) a sulfur atom in the form of a thiol or thioether group or a phosphorous atom where the sulfur or phosphorous atom binds to the support surface; and

(b) at least one accessory group that coordinates with the complex-forming metal ion wherein the accessory group is selected from the group consisting of (a) a nitrogen, oxygen or sulfur atom incorporated in an amino acid residue; (b) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an amino acid residue; (c) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an organic molecule; and (d) a combination of one or more accessory groups.

46. (Currently amended) The kit of claim 37, wherein the conjugate comprises a ligand and a targeting molecule, wherein the ligand comprises an organic molecule having a molecular weight of less than about 600 Daltons, ~~which~~ wherein said organic molecule comprises:

(a) a sulfur atom in the form of a thiol or thioether group or a phosphorous atom where the sulfur or phosphorous atom binds to the support surface; and

(b) at least one accessory group that coordinates with the complex-forming metal ion wherein the accessory group is selected from the group consisting of (a) a nitrogen, oxygen or sulfur atom incorporated in an amino acid residue; (b) a nitrogen, oxygen, selenium, phosphorous or sulfur atom

incorporated in an amino acid residue; (c) a nitrogen, oxygen, selenium, phosphorous or sulfur atom incorporated in an organic molecule; and (d) a combination of one or more accessory groups.

47-49 (Cancelled)